121. Finally, we noted that in the E911 Scope proceeding,[348] we decided to require MSS providers of voice service that is interconnected with the PSTN to establish E911 call centers. Also, NRIC had been directed to study several E911 implementation technical issues for satellite systems. Finally, comment had been sought on whether transition periods were necessary for MSS providers with an ancillary terrestrial component (ATC) to comply with the terrestrial wireless E911 requirements and on proposed reporting and recordkeeping requirements in connection with implementation of the emergency call center rule. In the *Notice*, we proposed that Mobile Satellite Service ("MSS") providers of interconnected voice service be subject to E911 outage-reporting requirements, including those proposed in the proceeding paragraph. Nevertheless, we proposed to delay implementation of these proposed requirements for MSS providers until the implementation issues for the MSS, raised in the *Second Further Notice* in the E911 Scope proceeding,[349] were resolved. We welcomed comments on these proposals.

122. *Comments.* Six satellite service providers submitted comments. Intelsat, Telesat Canada, PanAmSat and SES AMERICOM provide services through Geo-stationery (GEO) satellites and are fixed satellite service (FSS) providers. GlobalStar and Iridium provide services through non-GEO (NGO) Low Earth Orbit (LEO) satellites and are mobile-satellite service (MSS) providers. All of the satellite service providers state that they currently file annual reports on the status of their satellite systems. The GEO FSS parties state that, by the nature of their service, their role is simply to provide transponder capacity to entities that provide service to end users, and they therefore have no direct knowledge of how many end users are potentially affected by any given transponder failure. On the other hand, the NGO MSS providers contend that, during any particular satellite failure, service to end users is never lost for more than a few minutes because they maintain available spare satellites in orbit. Iridium objects to the proposed requirement to report equipment failures. All of the satellite service providers indicate that they do not understand how the proposed 900,000 user-minute and 1350 DS3-minute reporting thresholds would apply to satellite operations. They contend that the threshold criteria for satellite reporting should be more closely related to the specifics of satellite technology. GlobalStar, PanAmSat and SES Americom request that the Commission more clearly define the term "satellite communications provider." Inmarsat in its reply comments agrees with the six satellite commenting parties and DHS in urging that outage reports be treated as confidential. Inmarsat also urges that two hours are insufficient for the preparation and submission of a detailed initial outage report.

123. *Discussion.* We are persuaded that FSS communications providers do not have a way to determine the number of end users nor the nature of the communications traffic that would be potentially affected by any given transponder failure. In addition, we find that MSS service providers are not likely to know how many end users are potentially affected during intermittent service disruptions. Nevertheless, we think it is important that major outages of satellite networks involving voice or paging services be reported. As a result, we are adopting a two tier approach for reporting – one for satellite operators and one for satellite communications providers. In either of the satellite outage reporting tiers, we are applying our rules only to voice and paging communications. In many cases, the satellites may carry a mix of traffic that includes video or audio programming, or private network communications, that are not covered by these rules. We believe that it is important that we obtain information on any outages

[348] *In the Matter of Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Networks and Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements et al.*, CC Docket No. 94-102 and IB Docket No. 99-67, *Report and Order and Second Further Notice of Proposed Rulemaking*, FCC 03-290, released December 1, 2003, at ¶¶ 20-48 and 111-112 (adopting 911 service call center requirements and seeking further comment on how to implement E911 requirements for the MSS).

[349] *Id.*

that meet our criteria if they could involve voice or paging communications. As a result, our reporting rules will not apply to satellites, satellite beams, inter-satellite links, MSS gateway earth stations, and satellite networks when those elements are used exclusively for non-covered services (that is, when they never are used to carry voice or paging communications). We believe this clarification will help satellite operators and satellite communications providers to determine more easily when reporting is required, and are modifying our proposed rules accordingly. We are also modifying our rules to more clearly distinguish between the requirements that apply to satellite operators and satellite communications providers.

124. As a first tier, all satellite operators will be required to report any outage of more than 30 minutes duration of the following key system elements: satellite transponders, satellite beams, inter-satellite links, or entire satellites. In addition, MSS satellite operators will be required to report any outage of more than 30 minutes duration at any gateway earth station. We recognize that several commenting parties, including Iridium, Intelsat, and Globalstar, have suggested that reporting requirements should apply only for service outages, not for equipment outages. They argue that satellite operators can often bring in-orbit spares into use or rely on other satellites in the network to provide coverage. While this may be true, we still believe that reporting should be required when key satellite system elements have failed for more than 30 minutes. Satellite systems in general are expensive and difficult to replace, and it can take a long time for replacement satellite systems to be manufactured and launched. Furthermore, use of in-orbit spares or other satellites in a network can have a significant impact on future satellite network redundancy and overall system capacity. Given the critical backup role that satellites systems play in the overall U.S. communications infrastructure, we believe it is essential that operators report outages of key satellite system elements.

125. We are adopting rules that identify the key satellite system elements, which would require reporting if there is an outage of more than 30 minutes duration, as satellite transponders, satellite beams, inter-satellite links, or entire satellites. We are also applying reporting requirements to MSS gateway earth stations if there is an overall gateway outage of more than 30 minutes duration. The reporting requirements will not apply to individual MSS gateway earth station outages where other earth stations at the gateway location are used to continue gateway operations within 30 minutes. Outage of any of the key satellite elements for an extended period could have a significant impact on the overall functioning of a satellite network and can affect system coverage, capacity and usability. They can also affect that ability of satellite systems to handle higher levels of emergency traffic if there is an outage elsewhere in the communications infrastructure. We note that this approach avoids the concerns raised by satellite operators that they could not determine the number of users or user-minutes that would be involved in an outage.

126. The second tier of our approach for satellite outage reporting is to require satellite communications providers to report outages that involve more than 900,000 user-minutes. We recognize that a FSS satellite operator may not know that an outage is even occurring when it involves the failure in a service provider's network that communicates with the FSS satellite. However, the satellite communications provider should know when such an outage occurs, and should be responsible for reporting that outage just as other non-satellite communications providers are required to do. We recognize that there may be cases, as raised by MSS operators, that a satellite communications provider doesn't know how many users may be potentially affected by the outage. This can be particularly true with the MSS operator is providing service both inside and outside the U.S. In those cases, we expect the satellite communications provider to determine whether reporting is required based on an estimate of how many users in the U.S. might be impacted and the amount of time those users lose service.

VIII. Reporting of Major Infrastructure Failures

127. The communications outage reports that we have received over the past ten years have provided significant insight into some of the major problems affecting circuit-switched voice communications. The infrastructure used to provide these services, however, is also used to provide many other services that are essential to Homeland Security and our nation's economy. A tiny glimpse into the other uses of our Nation's communications infrastructure was provided in Verizon's network outage report covering the World Trade Center disaster on September 11, 2001.[350] That report states that "some 300,000 dial tone lines and some 3.6 million DS0 equivalent data circuits were out of service" as a result of the damage. The ratio of more than ten times as many DS0[351] equivalent services using the infrastructure as dial tone lines is not unusual in a major metropolitan area. Most of the DS0 equivalent circuits are used to carry what are frequently called "special services." While we have not previously required the reporting of communications outages that affected large numbers of special services, we need to recognize in our communications disruption reporting rules the continuously increasing importance of data communications throughout the United States. We tentatively concluded that our rules should be revised to account for certain important attributes of special services. Rather than collect information that is limited specifically to "special services," however, we proposed to directly address the underlying issue and collect information on the potential impact on all communications services of major infrastructure failures.

A. DS3 Minutes

128. As a consequence, we proposed to establish additional outage-reporting criteria that would apply to failures of communications infrastructure components having significant traffic-carrying capacity. This requirement would apply to those communications providers for which we have already proposed outage-reporting requirements and would also apply to those affiliated and non-affiliated entities that maintain or provide communications networks or services on their behalf.[352] We tentatively concluded that the threshold reporting criterion for such infrastructure outages should be based on the number of DS3[353] minutes affected by the outage because DS3s are the common denominator used throughout the communications industry as a measure of capacity. A DS3 can handle 28 DS1s (T1s) or 672 DS0 (64 kbps voice or data circuits). On the higher end of the multiplexing hierarchy, an OC3 includes 3 DS3s, an OC48 includes 48 DS3s, and an OC192 includes 192 DS3s. Specifically, we proposed to require the reporting of all outages of at least 30 minutes duration that potentially affect at least 1,350 DS3 minutes.[354] We proposed to count only working DS3s in this measure, by which we meant those actually carrying some traffic of any type at the time of a failure. For example, an OC24 could have a maximum of 24 DS3s working, but at the time of a failure might have only 10 DS3s that are in working condition and equipped with the necessary electronics. In this case, only the 10 DS3s would

[350] Network Outage 01-147, Verizon Final Report (Oct. 11, 2001).

[351] A DS0 circuit is normally associated with a 64 Kbps data rate.

[352] For example, an entity that supplies optical fiber transmission links to communications providers or to ISPs would be included in this reporting requirement.

[353] DS3 circuits have a data rate of approximately 44.7 megabits per second.

[354] Therefore, for example, a DS3 that was out of service for 1,350 minutes would be a reportable outage. The 1,350 figure was derived from the current threshold-reporting criterion of "30,000 customers potentially affected." Each DS3 has a capacity of 672 DS0 circuits (basically, 672 "customers"). Therefore, to determine how many DS3s are equivalent to 30,000 customers, we compute: 30,000 customers divided by the DS3 capacity of 672 DS0 circuits (customers) equals 44.6 DS3s rounded to 45. Then, 45 DS3s multiplied by 30 minutes equals 1,350 DS3 minutes. Note that the figure of 45 DS3s for at least 30 minutes was proposed by Pacific Telesis (now part of SBC Communications, Inc.) in the Comments and Reply Comments it filed in CC Docket No. 91-273 in January and February 1994, respectively. At that time, however, there was no record of the number of outages that had affected the basic communications infrastructure.

be counted in determining whether the threshold-reporting criterion had been met. In addition, we regarded the failure for at least 30 minutes duration of a satellite or any of its in-service transponders as a major infrastructure failure and therefore had also proposed to require reporting of such outages. We stressed that the 1,350 DS3-minute and the satellite/transponder failure reporting criteria would be in addition to the 90,000 blocked-call and the 900,000 user-minute criteria proposed elsewhere in the *Notice*. Whenever any of these criteria are exceeded, the outage would be reportable and the values of all three measures, if applicable, would be required to be included in the outage report. We requested comment on these conclusions and proposed rules.

129. *Comments.* Five commenting parties specifically recognize the need for the reporting of DS3 outages[355] while only one commenting party suggested that other reporting criteria such as user minutes or blocked calls should replace the DS3 criteria.[356] ATIS and several other commenting parties[357] propose an alternative quantitative threshold for DS3 outages (*i.e.*, a failure of 48 or more DS3's for 30 minutes or more, or a failure of 24 or more DS3's for 6 hours or more). A number of commenting parties suggested that the failure of a DS3 that is part of a protection scheme such as a SONET[358] ring should not be required to be reported because communications services provided over the DS3 would not be immediately affected by the failure.[359] Five commenting parties[360] suggested that it would be difficult, if not impossible, for reporting carriers to determine the actual impact on end users of DS3 failures. Four commenting parties[361] suggest that the only DS3 failures that should be reported are those where "the service provider owns, operates and maintains the electronic terminal equipment at both end points." Three commenting parties[362] suggest that only the service provider whose infrastructure network element causes a reportable DS3 outage, or has maintenance responsibility for the point of failure, should submit the outage report. Two commenting parties state that we are requiring carriers to report on outages affecting special services.[363] AT&T[364] suggests in cases in which DS3s are the subject of a Service Level Agreement, they should not be counted in DS3 outages. BellSouth[365] argues that our proposal on outage reporting for major infrastructure failures would result in the indirect regulation of the "Internet and other data services" that should be free of regulation. BellSouth also argues that a "working DS3 should be

[355] City of New York *et al.* Joint Comments at 14; CTDPUC Comments at 5, 6; and WilTel Comments at 4.

[356] MCI Comments at 4.

[357] ATIS Comments at 33; AT&T Comments at 22; BellSouth Comments at 24; Qwest Comments at 13; SBC Comments at 10; USTA Comments at 23; Verizon Comments at 20.

[358] A SONET (Synchronous Optical Network) ring is a bidirectional multipoint fiber ring where the traffic normally flows in one direction (such as clockwise) around the ring. In the event of a single failure the traffic immediately reverses direction so as to maintain connectivity among the points on the ring.

[359] See ATIS Comments at 23; AT&T Comments at 22; MCI Comments at 5; Qwest Comments at 13; SBC Comments at 10; USTA Comments at 23; and WilTel Comments at 5, 6, 7.

[360] See BellSouth Comments at 22, 23, 24; MCI Comments at 5; Qwest Comments at 13; Sprint Comments at 21; and WilTel Comments at 4, 5.

[361] ATIS Comments at 23; AT&T Comments at 22; Qwest Comments at 13; and SBC Comments at 10.

[362] ATIS Comments at 23; BellSouth Comments at 24; and SBC Comments at 10.

[363] USTA Comments at 21, BellSouth Comments at 22.

[364] AT&T Comments at 22.

[365] BellSouth Comments at 22.

defined as one that has more than 10% of the DS0s in use."[366] One commenting party pointed out that our current rules do not require reporting unless there is a service outage.[367]

130. Several commenting parties suggest that various labels be placed on DS3s and that they then be counted or not depending on the label. For example, BellSouth and SBC state that only those DS3s labeled as "transport infrastructure components" should be counted.[368] BellSouth further states that the reporting requirements should "apply to infrastructure DS3s, not access DS3s."[369] In the same vein, Verizon asserts that outage reports should "be limited to interoffice facilities, not DS3 and higher facilities serving end user customers" which they are calling "customer DS3s."[370] BellSouth urges that DS3s "that are at least partially under the control of the customer" be treated differently than DS3s "within the control of the carrier."[371] Nextel states that it has had several problems with T-1 (DS1) lines provided by ILECs to haul traffic between Nextel cell sites and Nextel MSCs.[372] BellSouth urges that, to be reportable, DS3 outages must "affect customer service" but must not involve "public data networks."[373] BellSouth and USTA point out that today "the predominate traffic on DS3s is data."[374] BellSouth suggests that only DS3s that affect "customer service" should be counted and also argues that only DS3s with more than 67 DS0s in use should be counted.[375] Qwest perceives a need to "determine the number of T1s [DS1s] in service on each T3 [DS3] and determine the number of DS0s in service."[376] Sprint is concerned that a DS3 outage "does not measure the real impact on end users of an outage."[377] ITTA suggests that "a DS3 equates to 672 access lines. BellSouth at 25 asks us to only have our rules apply to "infrastructure DS3s, not access DS3s."[378]

131. In reply comments, ATIS and other parties reiterate their support for the alternative reporting threshold.[379] Three commenting parties express support for Verizon's proposal to exclude customer DS3s.[380] Both ATIS and Qwest support BellSouth's definition of a working DS3 (67 or more DS0s), but SBC recommends using at least 400 DS0s.[381] ATIS and Qwest both oppose Nextel's suggestion that T1 (DS1) outages be reported.[382] Four commenting parties express support that only

[366] BellSouth Comments at 24.

[367] Globalstar Comments at 4.

[368] BellSouth Comments at 24; SBC Comments at 10.

[369] *Id.* at 25.

[370] Verizon Comments at 18-20.

[371] BellSouth Comments at 24.

[372] Nextel Comments at 11-12.

[373] BellSouth Comments at 24.

[374] Id. at 22, USTA Comments at 23.

[375] BellSouth Comments at 23-24.

[376] Qwest Comments at 13.

[377] Sprint Comments at 21.

[378] ITTA Comments at n.14.

[379] ATIS Reply Comments at 16; BellSouth Reply Comments at 18; and Qwest Reply Comments at 13.

[380] ATIS Reply Comments at 17; BellSouth Reply Comments at 17; and MCI Reply Comments at 3.

[381] ATIS Reply Comments at 18; Qwest Reply Comments at 7; and SBC Reply Comments at 4.

[382] ATIS Reply Comments at 18; Qwest Reply Comments at 15.

"infrastructure" and not "customer" or "access" DS3s be reported.[383] ATIS supports USTA's comments regarding the resources required to report outages of special services.[384] BellSouth supports Qwest's comments regarding the end user impact of some DS3 outages and it also reiterates its earlier comments regarding public data networks.[385] MCI recommends the use of blocked calls instead of reporting DS3 outages, while Qwest expresses strong objection to MCI's proposal to not report DS3 outages.[386] Qwest expresses concern that the proposed reporting scheme may trigger multiple reports of the same outage.[387]

132. *Discussion.* ATIS and many other commenting parties appear to have misinterpreted our proposed DS3 reporting requirements. Our proposal was, and is, that an outage that lasts at least 30 minutes and affects 1,350 or more DS3 minutes shall be reported. As explained below, we adopt this proposal. The only place that 45 DS3s was mentioned was in explanatory footnote 104 showing how the 1,350 figure was initially derived.[388] Thus if, for example, 45 or more DS3s are out of service for 30 minutes, an outage report must be filed. However, the quantity of DS3s affected in an outage is just one factor used to determine if the 1,350 DS3 minute threshold has been reached. Outages of longer duration will become reportable for fewer than 45 DS3s according to the 1,350 DS3 minute threshold. For example, a DS3 that was out of service for 1,350 minutes would constitute a reportable outage. Similarly, an outage of two DS3s for 675 minutes would constitute a reportable outage, and so forth.

133. The alternative proposal of establishing the threshold criteria for reporting a failure of 48 DS3's for at least 30 minutes or of 24 DS3's for at least 6 hours would leave gaping holes through which significant basic infrastructure failures would go unreported. Under this proposal 23 DS3s could be out of service indefinitely (accumulating 1,380 DS3 minutes per hour) and would never be reported. Also 47 DS3s could be out of service for 5 hours and 59 minutes (16,873 DS3 minutes) (ATIS, BellSouth, Qwest, SBC, USTA, and Verizon proposals) or 7 hours and 59 minutes (22,513 DS3 minutes) (AT&T proposal) and not be reported. Hence, we reject this alternative in favor of our original proposal. We also reject the concept that an outage of any specific number of DS3s for 30 minutes or more would not be reportable regardless of the duration.

134. When a DS3 is part of a protection scheme such as a SONET ring, it will frequently switch to a protect-path within seconds of a failure in the primary path. The communication services being provided over the DS3 will not be immediately affected, ***but they will no longer be protected.*** Unfortunately, we have had a number of network outages reported where there are multiple failures on a

[383] ATIS Reply Comments at 18; BellSouth Reply Comments at 18; MCI Reply Comments at 3 and 5; and Qwest Reply Comments at 15.

[384] ATIS Reply Comments at 17.

[385] BellSouth Reply Comments at 17-18.

[386] MCI Reply Comments at 5 and 6; Qwest Reply Comments at 13.

[387] Qwest Reply Comments at 14.

[388] *Notice, supra* n.1 at n.104 ("The 1,350 figure was derived from the current threshold-reporting criterion of "30,000 customers potentially affected. Each DS3 has a capacity of 672 DS0 circuits (basically, 673 "customers") Therefore, to determine how many DS3s are equivalent to 30,000 customers, we compute 30.000 customers divided by the DS3 capacity o f 672 DSO circuits (customers) equals 44.6 DS3s rounded to 45. Then, 45 DS3s multiplied by 30 minutes equals 1,350 DS3 minutes. Note that the figure of 45 DS3s for at least 30minutes was proposed by Pacific Telesis (now part of SBC Communications, Inc) in the Comments and Reply Comments it filed in CC Docket No. 91-273 in January and February 1994, respectively. At that time, however, there was no record of the number of outages that had affected the basic communications infrastructure.")

SONET ring at different points in time, in one case five months after the initial failure.[389] The second failure that occurs before the first failure is repaired causes the loss of all communications services being provided over the DS3. We therefore require that DS3s that switch to protect be counted in DS3 outage minutes until such time as the DS3s are restored to normal service, including protection. An analogy would be to a two-engine airplane that can still fly with one engine. If one engine fails, the second (protection) engine keeps the plane flying but in an impaired state. Service is not restored to normal until both engines operate properly. Protected communications services are not restored to normal until both the primary and protect DS3s operate properly. In this same regard, if protection DS3s should fail while the primary DS3s are still working, services would not be immediately affected but the failed DS3 minutes are still counted toward the reportable trigger due to the loss of protection. Hence, we reject the proposed alternative that would exempt failures of DS3's that are part of a protection scheme.

135. We agree with the many comments that indicate it would be virtually impossible to measure the real impact on end users of a DS3 outage but find these observations inapposite.[390] The reporting of the failure of major communication infrastructure network components,[391] as measured by working DS3 minutes, is not intended to measure the immediate impact on "customers" or end users. Nor is it intended to measure the impact on any specific services as stated by Globalstar in its comments.[392] Rather, it is a measure of the impact on the basic communications infrastructure that has been put in place to provide wire and radio[393] communications to all the people of the United States. The DS3 minute reporting requirement does not require the reporting carriers to make any effort to determine the actual or potential impact of the outage on end users or "customers." Nor does the DS3 minute reporting requirement apply in cases where customer owned equipment fails or is taken out of service for any reason.

136. A DS3 is a communications highway that has been put in place to carry traffic in a digital format. That traffic can range from simple alarm and control circuits, to voice circuits, to radio and television programs, to circuits carrying ATM or credit card transactions, to FAA flight control circuits, to Department of Defense circuits, to circuits transferring billions of dollars from one Federal Reserve Bank to another, to circuits critical to the operation of the stock and bond markets. As discussed above, some DS3s that carry no traffic are built strictly as protection in the case of a failure of another DS3. MCI suggested that DS3 outages could be measured by blocked calls while at the same time other comments pointed out that the primary traffic on DS3s is data, not voice. We reject the suggestion that blocked calls can be used to measure DS3 outages because calls are only a portion of the traffic being carried on DS3s. We also find it necessary to point out that our concern is with the loss of communication highways regardless of how lightly or heavily they may be loaded at the time of an outage. The actual impact of a DS3 failure is that a communications highway that is part of this nation's communications infrastructure is no longer available. We are not asking carriers to calculate the potential impact of a DS3 failure. For example, if a failed DS3 is the only working DS3 in an OC48 (with 48 possible DS3s), then the potential is for 48 DS3s to have failed. Likewise, if that same OC48 was riding one fiber in a 72 fiber cable that was cut, then the potential is for all of the fibers to be multiplexed at the OC48 level even if some of the fibers were actually dark. We only require that the working DS3s be counted, not those that could be potentially working.

[389] Under the current 63.100 reporting scheme the initial failure was not reported because there was no loss of voice service to end users.

[390] Sprint Comments at 21; Qwest Comments at 13; BellSouth Reply Comments at 17.

[391] Fiber cable, fiber multiplexers, digital cross connects, etc.

[392] Globalstar Comments at 4.

[393] DS3s are carried on digital radio networks as well as on fiber.

137. A number of commenting parties suggested that only DS3 failures that should be reported are those where "the service provider owns, operates and maintains the electronic terminal equipment at both end points." This is an extremely restrictive provision that would be very difficult for the "service provider" to implement. The American National Standard for Telecommunications, T1.238-2003,[394] used to identify DS3s, does not even include data elements that identify who owns, operates or maintains the electronic terminal equipment at the ends of DS3s. It is expected that the primary infrastructure failures that will be reported will involve fiber cables, fiber multiplexers, and fiber cross connect devices. When these network elements fail there are apt to be hundreds of DS3s that are out of service. Determining the end points of each and every DS3 would be a major task and then to further determine the owner of the terminal equipment (possibly a bank), the operator of the terminal equipment, and the maintainer of the terminal equipment would be a difficult and time consuming task that would not contribute to the restoration of service or to a prompt reporting of the outage.[395] In almost all cases it will be possible to restore service without knowing what companies own, operate and maintain the electronic terminal equipment at each end of the DS3s. This Commission is concerned with understanding infrastructure failures that might suggest that adequate facilities are not being provided to serve the communications needs of the people of the United States, and not with who owns, operates and maintains the electronic terminal equipment. Hence, we reject the suggestion that the only DS3 failures that should be reported are those where "the service provider owns, operates and maintains the electronic terminal equipment at both end points."

138. Verizon in its comments expressed concern that customers may intentionally or unintentionally cause their DS3s to go out of service and did not want such failures counted toward the DS3 reporting trigger. In reply comments ATIS, BellSouth, and MCI supported Verizon's concerns. This Commission has no intention of asking service providers to report individual DS3 outages where the customer has deliberately turned the DS3 off, or where the customer's equipment has failed. To do so would be unfair to the communications provider. However, if that same DS3 goes through a multiplexer, a digital cross-connect, a fiber cable or other network component that fails then it shall be counted as one of the many DS3s that are affected. The determination that a customer intentionally or unintentionally caused a DS3 failure typically cannot be made until after service is restored.

139. We agree with the suggestion that the service provider whose infrastructure network component causes a reportable DS3 outage, or has maintenance responsibility for the point of failure, should submit an outage report. But we will not limit the reporting responsibility to such providers only. In this regard, we agree with MCI and Qwest[396] that any given failure may trigger multiple outage reports. We have made the reporting process very simple so as to readily accept and process multiple reports triggered by the same event such as a fiber cable cut. The individual fibers in the cable may be leased to different organizations, and the working DS3s riding on each fiber may be used to provide a wide variety of services. If a reportable quantity of calls are blocked due to the cut fiber then that should be reported. Likewise, if the cut fiber also causes a reportable quantity of wireline user minutes to be potentially affected then that should also be reported. The value of this system of outage reporting is that it is most likely to reveal how failures in one part of a network can trigger failures in other parts of the same network or in other networks. The needs of homeland security and the long-term goal of improving network security and reliability demand no less.

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[394] ANSI T1.238-2003 Information Interchange – Structure for the Identification of Telecommunications Facilities for the North American Telecommunications System published by and available from ATIS.

[395] We note that many of the DS3s will have one or both terminations in a private (non-carrier) location. As many commenters have pointed out, the primary task when network elements have failed is to restore service.

[396] MCI Comments at 4; Qwest Reply Comments at 14.

140. We disagree with AT&T's suggestion that in cases in which DS3s are the subject of a Service Level Agreement, they should not be counted in DS3 outages. The presence or absence of a SLA is not shown in the records described in ANSI T1.238-2003[397] and such information would only be readily available to the parties to the contract. Communications service providers routinely contract with third party vendors for equipment and various services, but the service provider always maintains ultimate responsibility for its network operations and services. Thus, all DS3s, regardless of whether they are the subject of SLAs, shall be included in the DS3 minute calculation. We disagree with BellSouth's assertion that our proposal on outage reporting for major infrastructure failures would result in the indirect regulation of the "Internet and other data services"[398] that should be free of regulation. Internet and data services are two examples of hundreds of services that can be, and are, provided on DS3s. We have no intention of requiring every carrier to examine all of the services that were provided on every failed DS3 and then deciding if it is reportable. That would be an almost impossible burden for the carriers and would unacceptably extend the amount of time that would be required before an outage would be reported. If a DS3 fails it shall be counted regardless of the services it was providing at the time of the failure. We also disagree with the contention that a "working DS3 should be defined as one that has more than 10% of the DS0s in use, *i.e.*, 67 DS0s"[399] and the SBC suggestion to increase the threshold to 400 DS0s.[400] Many of the working transport DS3s being are not demultiplexed down to the DS2, DS1, or DS0 level within the confines of the reporting carrier so it would be almost impossible to determine how many DS0, or DS0 equivalent, channels were in use at the time of a failure. The fact that a DS3 is working, as we have defined working, is sufficient for it to be counted as part of this infrastructure.

141. We also disagree with the suggestions that various labels, such as "access," "customer," "interoffice," or "infrastructure" be placed on DS3s and that they then be counted, or not, depending on the label. None of the labels suggested by the commenting parties are clearly defined and they are not necessary to identify a failure. We are not asking telecommunications providers to apply various labels to working DS3s and then to count them, or not count them, based on those labels. The fact that a DS3 is working, as we have defined "working," is sufficient for it to be counted as part of the infrastructure.

142. We observe that Nextel's comments regarding problems it has had with T-1 (DS1) lines provided by ILECs illustrate just how dependent wireless carriers are on the services provided by wireline carriers. While we are concerned with the DS1 problems identified by Nextel we decline to include DS1s in the outage reporting requirements at this time.

143. We also observe that, in the case of a "mid-span meet," we require, at a minimum, that an outage report be submitted by the provider whose network element failed or who "has maintenance responsibility for the point of failure."[401] Other service providers may also report the same failure if their failed services met one of the other reporting thresholds such as blocked calls or user minutes. MCI recognizes that "a single outage situation could ... give rise to two [or more] reportable events."[402] We recognize this possibility and have made the electronic reporting of outages as simple as possible. The advantage of multiple reports of the same outage under these circumstances is that: (i) outages can be reported more rapidly without provider confusion as to who should report; and (ii) we will have a much

[397] See *supra*, n.394.

[398] BellSouth Comments at 23 and BellSouth Reply Comments at 18.

[399] BellSouth Comments at 24.

[400] SBC Reply Comments at 4.

[401] *See, e.g.*, ATIS Comments at 22; Bellsouth Comments at 24 (comments describing these types of situations).

[402] MCI Comments at 4.

better understanding of the overall impact of a given outage. We further observe that several commenting parties portray DS3 outage reporting as far more complex a matter than we intend it to be. These concerns are misplaced. We have absolutely no intention of placing a burden on the DS3 provider to determine just what services were being carried, nor of determining just how many DS0s, if any, might have been in use, at the time of the outage, nor of determining the "real impact on end users" (an almost impossible task). Our concern is with the failure of working DS3s regardless of the services being carried or the fill at the time of the failure. In this regard, while a DS3 has a capacity of 672 DS0 communication channels, this is not relevant to infrastructure outage reporting since it is only one of hundreds of possible services that can be carried in a DS3. A DS3 is simply a unit of communications capacity that can be and is used to carry hundreds of different services, and the services that are actually carried can vary from hour to hour, if not moment by moment.

B. Signaling System Seven ("SS7")

144. Signaling System 7 (SS7) networks provide information to process, and terminate, virtually all domestic and international telephone calls irrespective of whether the call is wireless, wireline, local, long distance, or dial-up telephone modem access to ISPs.[403] SS7 is also used in providing SMS text messaging services, 8XX number (i.e., toll free) services, local number portability, VoIP Signaling Gateway services, 555 type number services, and most paging services. Currently our rules do not require outage reporting by those companies that do not provide service directly to end users. In addition, even for companies currently subject to outage reporting requirements, no threshold reporting criteria are currently based on blocked or lost SS7 messages.[404]

145. As a consequence, we proposed the addition of SS7 communications disruption reporting requirements. To be more specific, all providers of Signaling System 7 service (or its equivalent)[405] would be required to report those communications disruptions of at least 30 minutes duration for which the number of blocked or lost ISDN User Part (ISUP) messages[406] (or its equivalent) was at least 90,000.[407] We requested comment on these conclusions and proposed addition to our rules.

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[403] See Telcordia Notes on Common Channel Signaling (CCS) Networks, SR-NOTES-SERIES-17, Issue 1, August 2001, at 2-1 for a description of SS7 architecture.

[404] Implicit in this statement is that a blocked or lost signaling message will result in a blocked or lost call. There are numerous types of failures that have already resulted in lost or blocked signaling messages. For example, SS7 failures have occurred: when both A-links were cut; when A links were out of service due to a common power pack failure; when a timing problem on both A links isolated a central office; when all B links became overloaded; when a common software problem caused a pair of STPs to fail; when a translation error caused both STPs to fail; when a common table entry error caused both SCPs to fail; and when a software upload problem in both STPs resulted in SS7 service failure.

[405] Services "equivalent" to SS7 would be those services that currently provide, or will provide, the transmission signaling that SS7 protocols (and their successors) provide. Our intention here is to insure that this reporting requirement will continue to apply to future signaling developments that are similar in function to those that are performed through SS7 transmission/router/server architectures and databases.

[406] ISDN User Part (ISUP) is the functional module of the SS7 protocol that supports the signaling interactions responsible for the control of calls and connections for circuit-switched narrowband communications. An explanation of all SS7 messages including ISUP messages can be found in Telcordia Notes on SS7 and CCS Network Evolution, SR-NOTES-SERIES-13, Issue 1, August 2001, at 3-15.

[407] Under this approach, the number of blocked or lost messages could be based on call logs if they are available. Otherwise if call logs are not available, the number of blocked or lost messages could be estimated based on the normal call volumes during the applicable time(s) of day. The 90,000 criterion for blocked ISUP messages is analogous to the criterion of 90,000 blocked calls because an ISUP message is utilized to set up each call.

146. *Comments.* BellSouth supports our extending outage reporting requirements to third party SS7 providers.[408] Sprint, Verizon, Qwest, AT&T, ATIS and BellSouth have all stated that it would require some software modifications to count ISUP messages.[409] In addition, Qwest,[410] SBC[411] and BellSouth[412] have indicated that there are at least 5 ISUP messages for each call. Several companies have put forth the following suggestion. As described by Qwest:

> If SS7 signaling is within a service provider's network and the service provider is responsible for maintenance of the SS7 links at both end points, then providers would be required to report outages meeting the threshold proposed for IXC and LEC tandem switches, *i.e.*, outages resulting in blocked calls of a certain level [historic (30,000) or real-time (90,000)] lasting 30 or more minutes. If a third party SS7 provider is involved and a customer of a third party SS7 provider notifies their provider that they have met or exceeded the threshold proposed for IXC and LEC tandem reporting in their networks, the third party SS7 provider is responsible for any report compliance required in connection with any SS7 failure involved in the outage.[413]

BellSouth puts forth the following recommendation, with which ATIS, AT&T, SBC, and USTA concur:

> The Commission should require an SS7 provider to report an SS7-related event when the event: (1) is not reported by that carrier under another category; (2) lasts 30 minutes or longer; and (3) results in 90,000 or more blocked calls on a real-time basis. If real-time data is not available, historical like-day data could be used and the proposed threshold would be 30,000 blocked calls. For third-party providers that do not have access to their customer blocked call data, the providers shall query their customers for blocked call data to determine if an event is reportable. In addition, if a previously unrecognized event that resulted in 90,000 or more blocked calls is reported to a third-party provider, the third party provider should have the responsibility to submit an outage report.[414]

147. In reply comments, Verisign argues that third party SS7 providers should not have to report because they do not know the impact of the outages.[415] MCI states that the threshold for SS7 outages should be based on blocked calls.[416] Alcatel states that lost MTP messages can be counted by STPs and could be used as a surrogate for blocked or lost calls. That is, 500,000 lost MTP messages

[408] BellSouth Comments at 25.

[409] Sprint Comments at 22; Verizon Comments at 21; Qwest Comments at 14; AT&T Comments at 23; ATIS Comments at 23; BellSouth Comments at 26.

[410] Qwest Comments at 14.

[411] SBC Comments at 11.

[412] BellSouth Comments at 26.

[413] Qwest Comments at 14.

[414] BellSouth Comments at 26; ATIS Comments at 23; AT&T Comments at 24; SBC Comments at 11; USTA Comments at 24. See also BellSouth Reply Comments at 19; ATIS Reply Comments at 19.

[415] Verisign Reply Comments at 1.

[416] MCI Reply Comments at 6.

could serve as a surrogate for 90,000 blocked calls.[417] Alcatel estimates that there are between 5 and 6 times as many MTP messages as there are call attempts.

148. *Discussion.* We agree with most commenting parties that third-party SS7 providers should have to report an outage if the outage is big enough so that one or more affected carriers would also have to report. Having both the third party SS7 providers report as well as the affected communications service providers will help us to understand underlying vulnerabilities in these interconnected signaling networks. We find several significant weaknesses in the proposal put forth by Qwest. First, we continue to find it important for carriers to report outages that affect their customers even if the actual cause of the outage did not occur in their network or was not caused by them. This is the case with our current rule, and we find no reason to change the rule in this regard. The Commission continues to need outage information irrespective of whether culpability has been definitely determined. In the absence of such outage information, it may not be possible to determine with rapidity whether further action is necessary. Second, under Qwest's proposal, a third party SS7 provider would have to submit a report only if one of its several carrier-customers experienced an outage sufficiently large to meet the threshold criteria; otherwise, no report would be required even if, cumulatively, its carrier-customers experienced an outage that met the threshold criteria. Under the requirements that we are adopting, however, if several small carriers are simultaneously affected by an outage in a third-party SS7 provider's network, the third-party SS7 provider must report the outage if it meets the threshold criteria.

149. We agree with BellSouth's suggestion and will require that, for carriers and third party SS7 providers with access to blocked call information, the reporting of each outage in an SS7 network that lasts 30 minutes and either generates 90,000 blocked calls based on real-time traffic data or would result in 30,000 lost calls based on historic carried loads. Blocked or lost call information should be readily available for database outages (*e.g.*, "800-number" service outages). Also, third party SS7 providers may be able to use their link monitoring system to obtain blocked call data for other outages. In addition, third party SS7 providers could ask for traffic data from the affected carriers. Whenever blocked or lost call information is available, that information must be used to determine whether the reporting-threshold criteria have been met. For situations in which blocked or lost call information is unavailable, we proposed to use a count of lost ISUP messages as a surrogate for a count of lost or blocked calls. We agree with Alcatel, however, that there is an equally acceptable, more straightforward, and less burdensome alternative that will achieve this same goal. That is, whenever a third party SS7 provider cannot directly estimate the number of blocked calls, the provider must count the number of lost MTP messages (level 3). A count of 500,000 real-time lost MTP messages shall be used as a surrogate for 90,000 real-time blocked calls, and a count of 167,000 lost MTP messages on a historical basis shall be used as a surrogate for 30,000 lost calls based on historic carried loads.[418] Additionally, we clarify that whenever a provider relies on available historic carried call load data, that data must be for the same day of the week and the same time of day as the outage, and for a time interval not older than 90 days preceding the onset of the outage. Finally, we must account for situations where, for whatever reason, real-time and historical data are unavailable to the provider, even after a detailed investigation. In such cases, the provider must determine the carried load based on data obtained in the time interval between the onset of the outage and the due date for the final report; this data must cover the same day of the week and the same time of day as the outage. Justification that such data accurately estimates the traffic that would have been carried at the time of the outage had the outage not occurred must be available on request.

IX. Electronic Filing and New Reporting Process

[417] Alcatel ex parte on July 7, 2004.

[418] Alcatel estimates that there are between 5 and 6 times as many MTP messages as there are call attempts.

150. Consistent with authority granted by the Communications Act of 1934, as amended,[419] and in furtherance of the objectives of the Government Paperwork Elimination Act,[420] we proposed to require that communications outage reports be filed electronically with the Commission.[421] Electronic filing would have several major advantages for the Commission, reporting communications providers, and the public. For example:

- Providers would be able to file reports more rapidly and more efficiently.
- Information would be updated immediately. The expenses and efforts that are associated with the outage reporting process should be reduced substantially which, in turn, should result in continuing productivity gains.
- Changes to outage report data should be more easily accessible by communications providers, the public, and the Commission. Thus, reporting entities should be able to file initial and final report information more easily, and interested parties should also be able to access this information more quickly.
- Changes to electronic input form(s) can be implemented more quickly. Two of the purposes of the reliability database are to help identify causes of outages and to refine best practices for averting failures in communications networks. As networks evolve and experience is gained, the data fields can be more easily revised to improve the quality of the information received to reflect changes in communications infrastructures and management procedures.
- In addition, security precautions can be implemented to authenticate access by authorized users.

151. Our current outage reporting rules do not require, or even refer to, electronic filing (other than by facsimile). Although it is understandable, in retrospect, that our rules did not incorporate electronic filing because the Internet was just beginning to expand in 1992, we tentatively concluded that the time has now arrived to implement electronic filing procedures.[422] These procedures should not only facilitate compliance with the objectives that are expressed in the Government Paperwork Elimination

[419] See *supra* ¶ 12 and references cited therein.

[420] Government Paperwork Elimination Act, 44 U.S.C. § 3504 note, Pub. L. No. 105-277, Div. C, Title XVII, 112 Stat. 2681-749 (1998).

[421] See Appendix C for an illustrative depiction of the proposed data collection fields.

[422] The Commission has adopted mandatory electronic filing requirements in several other contexts. *See Wireline Competition Bureau Initiates Electronic Filing of Automated Reporting Management Information System (ARMIS) Data and Associated Documents by Incumbent Local Exchange Carriers,* Public Notice, 18 FCC Rcd 3245 (Wireline Comp. Bur., 2003); *In the Matter of Amendment of the Commission's Space Station Licensing Rules and Policies and 2000 Biennial Regulatory Review (Part 25),* IB Docket Nos. 02-34 and 00-248, *Third Report and Order and Second Further Notice of Proposed Rulemaking,* FCC 03-154, released July 8, 2003 ("*Space Station Licensing Rules 3rd R&O*"), at ¶ 64 (adopting mandatory electronic filing for routine C- and Ku-band earth station applications), ¶ 66 (adopting mandatory electronic filing for space station applications), ¶ 84 (inviting comment on extending electronic filing requirements to all pleadings governed by Part 25) & n.153; *In the Matter of Amendment of Part 5 of the Commission's Rules to Require Electronic Filing of Applications for Experimental Radio Licenses and Authorizations, Order,* FCC 03-207, released August 20, 2003; *Amendment of the Commission's Rules for Implementation of its Cable Operations and Licensing System (COALS) to Allow for Electronic Filing,* CS Docket No. 00-78, *Report and Order,* 19 FCC Rcd 5162 (2003); *Wireless Telecommunications Bureau (WTB) Extends Mandatory Electronic Filing Date,* Public Notice, 15 FCC Rcd 15692 (WTB, 2000); *1998 Biennial Review – Streamlining of Mass Media Applications, Rules and Processes,* MM Docket No. 98-43, 13 FCC Rcd 23056, 23060 ¶ 8 (1998); *and Electronic Tariff Filing System (ETFS),* Order, 13 FCC Rcd 12335 (Com. Car. Bur., 1998).

Act but also should improve service to the public, enhance the efficiency of our internal operations, and virtually eliminate any burden that would be associated with complying with the proposed reporting requirements.[423] It may, however, be desirable for other reasons to have alternative ways by which outage reports can be filed with this Commission. Accordingly, we requested comment on whether there are any circumstances under which electronic filing would not be appropriate and, if so, on what alternative filing procedures should be used in such circumstances. Finally, we recognized that as experience is gained with the electronic filing of outage reports, modifications to the filing template may be necessary to fully implement an automated outage reporting system that will maximize reporting efficiency and minimize the time for providers to prepare, and for the Commission staff to review, outage reports. Accordingly, we proposed to delegate authority to the Chief, Office of Engineering and Technology to make the revisions to the filing system and template that are necessary to achieve these goals.[424]

152. Historically, outage reports from wireline carriers have been available to the public. We sought comment as to whether this policy should not be applied, in whole or in part, to outage reports that will be filed by wireless, wireline, satellite, or cable providers and, if so, why.

153. *Comments.* If outage reporting is needed, virtually everyone was in favor of electronic outage reporting. There were a number of suggestions by several companies but, since BellSouth provided the most comprehensive list, we used its list as a starting point:

1. Provide a method for time and date stamping all report submissions.[425]
2. Provide a unique identifier or control number in order to link reports associated with a specific reportable event.[426]
3. Permit carriers to prepare, save, and update draft reports to allow for management review and revision. The draft reports should not be available to anyone other than the reporting entity.[427]
4. Permit providers to print drafts and reports submitted to the Commission.[428]
5. Allow for multiple users at each company.[429]

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[423] Irrespective of any of the reporting requirements that we are proposing here, we expect that communications firms will track, investigate, and correct all of their service disruptions as an ordinary part of conducting their business operations - and will do so for service disruptions that are considerably smaller than those that would trigger the reporting criteria that we propose here. As a consequence we believe, in the usual case the only burden associated with the reporting requirements contained in this Notice will be the time required to complete the initial and final reports. We anticipate that electronic filing, through the type of template that we have identified in Appendix B, will minimize the amount of time and effort that will be required to comply with the rules that we propose in this proceeding. Electronic records and signatures are legally binding to the same extent as if they were filed by non-electronic means. *See generally* Sections 101-106 of the Electronic Signatures in Global and National Commerce Act, Pub.L. 106-229, June 30, 2000, 114 Stat. 464, codified at 15 U.S.C. §§ 7001-7006. For further discussion regarding the burden placed on communications providers by the revised rule, see our PRA analysis, *infra* ¶¶ 162-171, and our FRFA analysis, *infra* Appendix D.

[424] *See, generally,* Section 5(c) (1) of the Act, 47 U.S.C. § 155(c) (1); *Space Station Licensing Rules 3rd R&O, supra* note 113, at ¶ 8.

[425] BellSouth Comments at 28.

[426] Id.; Qwest Comments at 24; Globalstar Comments at 28; Verizon Comments at 22; AT&T Comments at 27.

[427] BellSouth Comments at 28

[428] Id,, ATIS Comments at 36.

[429] BellSouth Comments at 28.

6. Provide for digital signatures to ensure that the report was not filed by an unauthorized person.[430]
7. Provide for encryption on the transmission of the report in order to protect against unauthorized disclosure and access.[431]
8. Allow for the withdrawal of the two-hour notification reports without requiring a formal retraction letter.[432]
9. Need ability to withdraw notifications and initial reports electronically and strike them from the public record.[433].
10. System needs to be able to deliver a filed/confirmed copy.[434]

154. There were several suggestions on improving the outage template. Ericsson stated that the name and type of equipment should be identified only when that equipment was the direct cause of the outage.[435] KCC suggested that we add a field asking whether Telecommunications Service Priority (TSP) was involved in the restoration of service and a field for the vendor name.[436] In addition, KCC suggests that we have a way that outages that occurred during installation and/or rearrangement are identified. Finally, KCC suggests that our outage-reporting template contain a link to the NRIC website for accessing the list of best practices. ATIS suggests that the template indicate whether the report is an initial report or a final report and recommended that Best Practices Used field be eliminated.[437] BellSouth recommended a field to designate the appropriate time zone in which the outage occurred. BellSouth also recommended that there be more specific instructions explaining what was inside a building and what was outside a building. Finally BellSouth recommended that all names, addresses, phone numbers, be kept confidential.[438]

155. Observing that, under our proposal, several communications providers and/or third party network providers could be required to file reports on the same underlying outage, CTIA and WilTel express concern about the potential additional burden on reporting entities could result from duplicative filings.[439] WilTel asks what are "the reporting requirements when an outage affects service provided by a carrier that does not own or operate the underlying network upon which the outage occurs?" Globalstar states that only the entity responsible for an outage should have to report.[440] Several organizations indicated that federal reporting guidelines should not duplicate what is done at the state level.[441] Every state/city commission (Connecticut, Kansas and New York City) that responded to this NPRM has supported this rulemaking. Finally, the commenting parties from the private sector unanimously oppose the Commission's proposal to delegate to the Chief, Office of Engineering and Technology, anything

[430] Id.

[431] Id. .

[432] Id. at 29.

[433] Qwest Comments at 24; Globalstar Comments at 28; ATIS Comments at 32; Verizon Comments at 22.

[434] Qwest Comments at 24; AT&T Comments at 27.

[435] Ericsson Comments at 6.

[436] Kansas Comments at 4.

[437] ATIS Comments at 37.

[438] BellSouth Comments at 35, 37.

[439] CTIA Comments at 13; WilTel Comments at 3.

[440] Globalstar Comments at 9

[441] Rural ILECs Comments at 2; NCTA Comments at 6. ITTA Comments at 4.

more than the authority to make non-substantive, editorial changes to the outage-reporting rule. In reply comments, ATIS repeats its initial recommendations about electronic reporting, supports some of BellSouth's comments, and rejects some of KCC's comments.[442] Southern LINC and Southern Telecom state that the proposed template asks for too much information particularly if an initial report with comprehensive information is due in 120 minutes.[443]

156. *Discussion.* We agree with virtually all suggestions made about the electronic reporting process. That is, we agree that it is necessary to provide a method for time and date stamping all report submissions. The current process date stamps all faxed transmissions, with electronic time and date stamping occurring virtually automatically. All submissions will have a unique identifier or control number. We agree that companies will be allowed to prepare, save, and update draft reports to allow for management review and revision. The draft reports should not be available to anyone other than the reporting company since the information may still be tentative. We will permit providers to print drafts and reports submitted to the Commission. We plan on allowing only a small number of users from each company to submit and edit initial and final reports for security reasons. We are currently investigating the proper level of security for the electronic system. This may include digital signatures and encryption. We will allow for the appropriate withdrawal of the two-hour notification reports without requiring a formal retraction letter. We agree that companies need to be able to withdraw notifications and initial reports in legitimate circumstances.[444] However, the system will keep copies of all submissions. The electronic system will be able to deliver a filed copy.

157. We disagree with Ericsson's assertion that that the name and type of equipment should be identified only when that equipment was the direct cause of the outage. Some outages are specific to one vendor's product. These fields are in the current outage-reporting template and even in the NRIC VI template. We adopt KCC's suggestion that we add a field asking whether Telecommunications Service Priority (TSP) was involved in the restoration of service. We agree that outage data could help gauge the effectiveness of TSP. We do not adopt KCC's suggestion that we add a field for the vendor name because the name of the equipment is usually uniquely identified with a particular vendor. We also note that KCC's suggestion that we identify outages that occurred during installation and/or rearrangement will be handled in the fields for contributing factors. We adopt KCC's suggestion that our outage-reporting template contain a link to a website for accessing the list of Best Practices. Since several reporting fields are related to the use of Best Practices, it is essential to make it easy for users to access the relevant Best Practices. We adopt ATIS's suggestion that the template indicate whether the report is an initial report or a final report. Clearly, we need to be able to distinguish between initial and final reports. The electronic template will have a field to designate the appropriate time zone in which the outage occurred, as suggested by BellSouth. This will make it easier to compare outages that occurred nearly simultaneously across the country. We plan to have instructions for all the fields. We disagree that the outage template is too comprehensive noting that we received suggestions for additional fields. We disagree with the comments that suggest that it is inappropriate and wasteful for the Commission to require different entities to file reports with respect to the same underlying outage. We have historically required all entities to report the same event if those companies cross one of our thresholds. There have been some instances of multiple filings on the same event in the past, but typically the number of reports per such events does not exceed two. For example, there were seven final reports that were a result of the Northeast power outage. Often there are several companies responsible for an outage. For example, a carrier who buys SS7 service from a third-party SS7 provider will still have to file a report on an outage caused by a failure in the SS7 network if the outage has a big enough impact on its own communications

[442] ATIS Reply Comments at 27, 28.

[443] Southern LINC and Southern Telecom Reply Comments at 7.

[444] E.g., where a notification was filed under the mistaken assumption that the outage was required to be reported.

services. Both the SS7 provider and the carrier will be required to report the outage. Furthermore, requiring just one company to report could necessitate endless negotiations among the affected companies to decide who should report. Requiring all companies that cross a relevant threshold to report is simpler and, in the long run, less burdensome to all. And, it facilitates faster reporting which is essential for homeland security. If a communications provider experiences a single outage that satisfies several reporting thresholds (e.g., wireline, SS7 and DS3), the provider will be required to file only one report for the outage. The only occasions that a communications provider would have to file an outage report when it has not experienced an outage that satisfies the general threshold criteria based on the 30 minute/900,000user-minute common metric are when it experiences outages based on the additional threshold criteria that we are adopting (e.g., for DS3 or SS7). Generally, on only rare occasions, the modified rule could result in the filing of an additional report on the same outage event; in the case of SS7 outages, for example, an additional report could be required as a result of an outage in a third-party SS7 network. Finally, analysis of these additional reports could be exceedingly important in understanding how reliability in one network affects the reliability of other networks. The insights gleaned from such analysis could contribute greatly to increasing the reliability and security of the nation's telecommunications infrastructure and to furthering our Nation's homeland security.

158. With respect to the issue of potential duplication of the efforts of the states, we emphasize that we do understand the potential value of having one outage template instead of 50 different templates. Individual states, however, may have their own unique needs that could necessitate their collection of outage-reporting data that may differ from that needed by the Commission. For example, South Dakota requires many more outage reports than our criteria would generate. But since South Dakota is a small state, it may need tighter criteria in order to generate more than a handful of useful outage reports. It is, however, possible that our reporting requirements may provide a common framework that will be of assistance to state, commonwealth and territorial governments; and which may, therefore, serve to reduce the number of outage reports that might otherwise be required by those jurisdictions. Furthermore, we anticipate increased collaboration with DHS, state and local governments, and expert industry groups on matters of network reliability, homeland security, and emergency communications. The fruits of this collaboration will require that adjustments be made to our outage-reporting template and filing system on an expeditious basis. The most efficient manner in which the Commission can address this issue is to delegate authority to the Chief, Office of Engineering and Technology, to make necessary changes to the template and filing system.[445]

X. Small Business Alternatives

159. We noted that the economic impact on small entities that would result from our proposed action consists of the electronic filing of two outage reports for each significant outage experienced. This impact, we tentatively concluded, is likely to not be significant because we found that our proposals would not likely have a significant economic impact on a substantial number of small businesses. We anticipated that our proposals would produce no more than 1,000 communications outage reports filed by all communications providers annually and that the vast majority of these reports will be filed by larger businesses. Our proposals would require the reporting of outages of at least 30 minutes duration that meet specified criteria. One of the criteria is that the outage potentially affects at least 900,000 user-minutes for providers of telephony and/or paging services (including wireline, cellular-type wireless, cable telephony, and satellite telephony services). Those communications providers that would qualify as "small businesses" were, we tentatively concluded, highly unlikely to experience outages of sufficient

[445] *See* section 0.241(d) of our rules, *infra* Appendix B, which authorizes the Chief, Office of Engineering and Technology to implement the reporting requirements specified in Part 4 of our rules. For further discussion regarding the burden placed on communications providers by the revised rule, see our PRA analysis, *infra* ¶¶ 162-171, and our FRFA analysis, *infra* Appendix D.

magnitude to meet the user-minute criterion. If they were to experience such an outage, then a likely inference would be that a small number of users had lost service for several days duration, a situation of which we should be apprised. We did not believe that it would be wise to exempt small businesses from the proposed requirements to report outages of at least 30 minutes duration that also satisfy the other proposed reporting criteria (*i.e.*, those criteria that are not expressed in terms of user-minutes), such as the criteria of potentially affecting special facilities, offices, or services (including 911) or presenting major infrastructure failures or SS7 problems. We requested comment on these conclusions and on any useful alternatives that we should consider that would further reduce the impact of the outage reporting requirements on small businesses. The Rural LECs filed responsive comments. We address these matters in the Final Regulatory Flexibility Analysis ("FRFA") in Appendix D.

XI. CONCLUSION

160. For the reasons set forth above, we adopt outage-reporting requirements for wireline, cable, satellite, and terrestrial wireless communications providers, Signaling System 7 providers, and "affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in offering such communications." These requirements were set forth in our original proposal but contain certain modifications discussed above. We conclude that this action will best serve the public interest by enabling the Commission to obtain the necessary information regarding services disruptions in an efficient and expeditious manner. This action addresses the critical need for rapid, full, and accurate information on service disruptions that could affect homeland security, public health and safety, as well as the economic well being of our Nation. This action takes into account the increasing importance of non-wireline communications, as well as wireline communications, in the Nation's communications networks and critical infrastructure.

XII. PROCEDURAL MATTERS

A. Final Regulatory Flexibility Analysis

161. As required by the Regulatory Flexibility Act of 1980, as amended ("RFA"),[446] the Commission has prepared a Final Regulatory Flexibility Analysis ("FRFA") of the possible significant economic impact on a substantial number of small entities by the policies and rules adopted in this Report and Order ("Report and Order"). The FRFA is set forth in Appendix D. The Commission will send a copy of this Report and Order, including this FRFA, to the Chief Counsel for Advocacy of the Small Business Administration ("SBA").[447] In addition, the Report and Order and FRFA (or summaries thereof) will be published in the Federal Register.[448]

B. Final Paperwork Reduction Act Analysis

162. This document contains modified information collection requirements subject to the Paperwork Reduction Act of 1995 ("PRA"), Public Law 104-13. The information collections proposed in the *Notice* were submitted for review under Section 3507(d) of the PRA to the Office of Management and Budget (OMB), which assigned OMB Control Number 3060-0484 to the proposed information collection. OMB, the general public, and other Federal agencies were invited to comment on the new or modified information collection requirements contained in this proceeding.

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[446] *See* 5 U.S.C. § 604. The RFA, *see* 5 U.S.C. §§ 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 ("SBREFA"), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[447] *See* 5 U.S.C. § 603(a).

[448] *Id.*

163. In this present document, we have assessed the effects of how the modified outage-reporting requirements that apply to wireline communications providers and to cable communications providers of circuit-switched telephony, and the new outage-reporting requirements that apply to satellite communications providers, Signaling System 7 ("SS7") providers, terrestrial wireless communications providers, and affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in offering such communications, will impose information collection burdens on small business concerns. We have taken into account the comments that the Rural ILECs filed pursuant to the PRA and to the Initial Regulatory Flexibility Act ("IRFA").[449] In these comments, they state that our original proposal, which would have required small communications providers to file detailed, initial outage reports within 120 minutes of their discovery that an outage was occurring, would be overly burdensome. They explain that their employees who diagnose outages and then work to repair and restore their communications networks are the same employees who would be called upon to supply the information needed for the initial outage reports and/or to file those reports with the Commission. Therefore, the Rural ILECs conclude that our proposal would result in a paperwork burden for rural ILECs that would interfere with the restoration of service. Second, the Rural ILECs note that our initial PRA estimated that the proposed reporting requirement would take about 5 hours for each response and state that, therefore, the proposed 120-minute time frame for filing initial outage reports may be technically infeasible, especially in outage situations where faxes cannot be sent and the Internet cannot be accessed. To address these concerns, the Rural ILECs suggest that the Commission exempt those companies that are already subject to state outage reporting requirements. They also suggest that the Commission allow those companies that are not subject to state reporting requirements to report outages orally to the Commission within 24 hours of their discovery of a reportable outage.

164. In their general comments, several parties broadly assert that "reporting obligations will only cause additional administrative burden."[450] BellSouth states that the number of filed reports could rise 1000 percent.[451] Verizon adds that the new rules would result in an increase in the number of outage reports that it files annually, from between 19 and 25 to 500 approximately, requiring it hire five additional employees to work on outage reporting.[452] MCI states that the new rules would result in the annual filing of at least 25 times more outage reports than are currently filed.[453] ATIS states, "[c]hanges in [the reporting] thresholds would certainly require the retraining of personnel and, in many cases, would

[449] The Rural ILECs include the following 33 rural incumbent local exchange carriers that state that they have fewer than 1,500 employees and should therefore be considered to be small businesses: Big Sandy Telecom, Inc.; Bluestem Telephone Company; C-R Telephone Company; Chautauqua and Erie Telephone Corporation; China Telephone Company; Chouteau Telephone Company; Columbine Telecom Company; Community Service Telephone Company; Ellensburg Telephone Company, Inc.; Fremont TelCom; Great Plains Communications, Inc.; GTC, Inc.; Kennebec Telephone Company; K&M Telephone Company; Maine Telephone Company; Marianna and Scenery Hill Telephone Company; Northland Telephone Company of Maine, Inc.; Odin Telephone Exchange, Inc.; Peoples Mutual Telephone Company; RC Communications, Inc.; Roberts County Telephone Cooperative Association; Sidney Telephone Company; Standish Telephone Company, Inc.; STE/NE Acquisition Corp. d/b/a Northland Telephone Company of Vermont; Sunflower Telephone Co., Inc.; Taconic Telephone Corp.; The El Paso Telephone Company; The Columbia Grove Telephone Company; The Nebraska Central Telephone Company; The Orwell Telephone Company; Waitsfield-Fayston Telephone Company; Yates City Telephone Company; and YCOM Networks, Inc. *See* Rural ILECs Comments on the IRFA at 1 & Attachment A; Rural ILECs Comments on the PRA.

[450] Sprint Comments at 1; BloostanLaw Rural Carriers Comments at 1; USTA Comments at 11; BloostanLaw Paging Group Comments at 8; NTCA Comments at 3; Verizon Comments at 7;

[451] BellSouth Comments at 2, 3.

[452] Verizon Comments at 2.

[453] MCI Reply Comments at 3.

require substantial capital outlays for new equipment."[454] AT&T stresses that the proposed requirement for SS7 providers to count lost ISUP messages would be burdensome and costly.[455] ITTA claims that small and midsize carriers are disproportionally burdened by the new rules.[456] NCTA argues that carriers with less than 100 employees should not be required to report outages.[457] USTA states that an increase in the number of outage reports filed annually could overburden the Commission.[458]

165. On the other hand, the Staff of the Kansas Corporation Commission states, "[t]he scope of information requested appears to be very relevant and comprehensive. It should not be burdensome to provide."[459] The Connecticut Department of Public Utility Control states, "[t]he Commission has proposed service disruption rules that revise existing complex and burdensome rules putting into place those that appear to be administratively efficient."[460]

166. *Discussion:* We have considered the concerns raised by the commenting parties and have taken significant steps to minimize the administrative burdens on reporting entities, including small businesses. As is the case with the existing rule, most of the administrative burden is caused by the need for the communications provider to investigate outages and to collect information on these outages for its own internal use. Virtually every telecommunications provider, in the ordinary course of business, collects this type of information for its own use in order to operate and maintain its network. We do not find that the reformatting of this information and the collection of some additional information to comply with the rule adopted herein will result in an undue administrative burden. We find that our adoption of the three-stage reporting process that several commenting parties alternatively proposed will reduce the administrative burden. In particular, by not requiring the filing of a detailed initial outage within 2 hours of discovery of the outage (as the existing rule requires in some instances) and, instead, requiring the filing of only a bare-bones notification, the provider's technical staff will be able to focus on the necessary outage diagnosis and restoration efforts. Because most outages last a few hours at most, the technical staff will also be able to assist in preparing and filing the initial and final outage reports in a timely fashion. No additional staff appears necessary for reporting entities to comply with the revised rule. The revised rule requires that within 120 minutes of discovering an outage, each reporting entity, whether large or small, must electronically submit to the Commission a Notification that contains only a minimal amount of data, that is, the name of the Reporting Entity; the Date and Time of onset of the outage; a Brief Description of the Problem; the particular Services Affected; the Geographic Area affected by the outage; and a Contact Name and Contact Number by which the Commission's technical staff may contact the reporting entity. But, if a specific outage situation prevents the Notification from being filed electronically or by FAX, other written means of filing (such as the use of a courier) will be acceptable. Thus, we find that our action will enable communications providers to focus on their repair and restoration efforts immediately after onset of the outage. The bare-bones Notification that we require will not substantially divert them from these efforts but will alert the Commission to the possibility that a major communications disruption might be occurring. We anticipate that reporting entities will ordinarily not need more than 15 minutes to file a Notification with the Commission. A more detailed initial report will be required to be filed electronically 72 hours after the outage was discovered. At this point, much

[454] ATIS Comments at 15.

[455] AT&T Reply Comments at 6.

[456] ITTA Comments at 1-4..

[457] NCTA Comments at 7.

[458] USTA Reply Comments at 7.

[459] KCC Comments at 4.

[460] CDPUC Comments at 6.

more information will ordinarily be available and restoration efforts will likely be either complete or well on the way to completion. The information that we seek is of the type that the reporting entity will routinely gather as part of its outage diagnosis and restoration efforts. We anticipate that reporting entities will ordinarily not need more than 45 minutes to complete and submit the initial report to the Commission. The initial report will contain all available information and must be submitted in good faith.

167. The final report is required to be filed electronically 30 days after the outage was discovered. At this point, complete information will, in almost all cases, be available and the final report must contain this information and be submitted with an attestation to its accuracy and completeness. We anticipate that reporting entities will ordinarily not need more than 2 hours to complete and submit electronically the final report to the Commission. These time estimates include the actual time needed for data entry and submission but do not include the time taken for data gathering and analysis. Also excluded is idle time (for example, any time in which partially completed information is waiting in an in-box for further review), which we find cannot fairly be counted as a reporting burden. Since most companies routinely collect information on major failures, it is difficult to estimate precisely how much additional time for data gathering and analysis, if any, will be required to comply with the revised rule. In any event, we estimate that for the great majority of outages the total additional time so required will be significantly less than two (2) hours. Thus, the final report will generally not require more than 4 hours in total time.

168. In making all of our time estimates, above, we have taken into account that all filings are to be made electronically, through a "fill in the blank" template, thereby minimizing the burden on all reporting entities. In sum, we estimate the total time needed to file all reports pertinent to each outage that meets or exceeds the threshold criteria to be significantly less than 5 hours (the Notification + the Initial Report + Final Report: 15 minutes + 45 minutes + 2 hours = 3 hours). Although we anticipate that more than the current (2003) number of 126 outage reports will be filed annually, we estimate that the total number of reports from all reporting sources combined will be substantially less than 1,000 annually.

169. In reaching these conclusions, we disagree with the argument of the Rural ILECs that, because our initial PRA estimates of 52 respondents, 5 hours per response, and 1,040 hours per year response time were the same as for our existing outage-reporting rule, these estimates are far too low for the proposed expanded rules. For analytical purposes, we shall assume that the Rural ILECs are correct that the adopted rule will extend to most of the 1,337 incumbent LECs that, it states, are too small to be subject to most existing requirements, and to the previously-exempt 1,387 wireless service providers and 324 satellite telecommunications providers. Nonetheless, both the general outage-reporting criteria under both the old and new rule do not require outages whose duration is less than 30 minutes to be reported. The old rule applied only to outages potentially affecting 30,000 customers. The new rule replaces the term "customers" with the term "users" to clarify that the rule has always been focused on the number of end users potentially affected, including the many employees who may work for large organizational "customers" of the reporting entity. We refined the old rule, however, because it permitted very long outages to go unreported if less than 30,000 users were potentially affected by the outage. Instead, the new rule includes outages potentially affecting at least 900,000 user-minutes, where the number of user-minutes is the mathematical result of multiplying the outage's duration expressed in minutes by the number of potentially affected users. Thus, under the old rule, an outage of at least 30 minutes duration that potentially affects at least 30,000 users must be reported. Such an outage equates to 900,000 user-minutes (30 minutes duration X 30,000 users) and, thus, must be reported under the new rule. Under the new rule, however, longer-lasting outages that potentially affect less than 30,000 users may have to be reported. For example, an outage that lasts 60 minutes that potentially affects 15,000 users must be reported under the new rule because the outage potentially affects 900,000 user-minutes (60 minutes duration times 15,000 users). We anticipate that this modification to the rule will require the reporting of a few more outages than the approximately 200 outages that were reported annually. Communications

providers that are small businesses are likely to have far fewer end users than the large ILECs, which have filed the vast majority of all outage reports in the past. We find it likely that, only on the rarest of occasions, small businesses may be required to file outage reports. Furthermore, it is practically inconceivable that small business employing 25 or fewer employees will ever be required to file an outage report, because the communications providers to which the revised rule applies typically require far larger numbers of employees. In addition, as discussed in the preceding paragraph, we anticipate that the response time per report will be significantly less than the 5 hours that we estimated in the past. This is a direct result of our adoption of electronic filing with a "fill in the blank" template. Finally, no commenting party in this proceeding, including the Rural ILECs, has offered any estimates of their own as to what the estimates for reporting burdens should be. As a consequence, we find that the initial PRA estimate of an overall annual reporting burden of 1,040 hours is reasonable.

170. Additionally, we point out that the alternative, 72-hour time frame for filing initial outage reports is more generous than the 24-hour time frame suggested by the Rural ILECs. Thus, we do not find that the public interest would be served by the Rural ILECs suggestion to permit outage information to be reported orally within 24 hours. The quality of information that would be submitted orally is likely to be less accurate and less uniform than that submitted electronically through the "fill in the blank" template which we have adopted. This is particularly important in the context of retransmitting this information to the Department of Homeland Security. Also, the reporting burden would likely not decrease as a result of oral submissions, because of the speed that e-filing permits and because of the greater likelihood that the Commission would need to ask oral submitters to correct and supplement incorrect and incomplete orally-submitted information. We also do not adopt the Rural ILECs suggestion that we exempt those small, rural companies that are subject to state outage-reporting requirements. We believe that there is a legitimate need for the national, uniform outage-reporting system that we adopted and which covers various communications platforms. This system is designed to address the critical need for rapid, full, and accurate information on service disruptions that could affect homeland security, public health and safety, as well as the economic well being of our Nation. Nonetheless, as the Commission, the Department of Homeland Security, and appropriate State authorities gain experience with the outage-reporting system that we adopting, the Commission and the States may make further refinements in their systems to improve the analytic results that can be gleaned from them and to eliminate any unnecessary duplication. In fact, this is one of the reasons that the Commission is delegating to the Chief of its Office of Engineering and Technology the authority to improve the outage-reporting system as the need for such improvements emerges. The information collection that we have adopted is necessary to fulfill the Commission's responsibilities for ensuring the reliability and security of the Nation's telecommunications networks and infrastructure, which also serves the public's homeland security needs. We do not find that further accommodations for small businesses could be made that would not be outweighed by the public interest benefits of our present action. Moreover, as discussed in the preceding paragraph, we do not anticipate that there will be any, let alone a significant number of, businesses having fewer than 25 employees that would be covered by the outage-reporting rule that we adopted in this proceeding.

171. Finally, we have revised the criteria for reporting E911 and SS7 outages in a manner that will reduce the number of outages that will need to be reported. We also observe, as a possible gauge of administrative burden, that in the NRIC VI voluntary trial, participant wireless, Internet service, satellite, and cable communications providers submitted 66 outage reports cumulatively for 2003.[461] Because 26 providers had participated in this trial, the frequency of reporting averaged 0.21 reports per month per provider. Although these statistics do not provide a solid estimate of what the actual reporting burden will be under the revised rule, we do find that it is a strong indicator that the commenting parties have greatly overestimated the additional burden that could result from the rule. Thus, for example, we greatly

[461] NCC report as of January 2, 2004. The voluntary trial for NRIC VI covered the year 2003.

doubt that the number of outage reports to be filed by Verizon will rise by a factor of 20, and even if it did, we doubt that Verizon would need to hire an additional five employees to file a little over one outage report a day. But even if it were to do so, we would not consider this to be a significant burden because of Verizon's size and large, multifaceted operations in more than 35 states, commonwealths and territories. In summary, we agree with the Staff of the Kansas Corporation Commission and with the Connecticut Department of Public Utility Control that our revised rule will not impose requirements that are unduly burdensome.

C. Congressional Review Act

172. The Commission will include a copy of this Report and Order in a report to be sent to Congress and the General Accounting Office pursuant to the Congressional Review Act, see 5 U.S.C. 801(a)(1)(A).

D. Initial Regulatory Flexibility Analysis

173. As required by the Regulatory Flexibility Act of 1980, as amended ("RFA"),[462] the Commission has prepared this present Initial Regulatory Flexibility Analysis ("IRFA") of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in the *Further Notice of Proposed Rulemaking* (*Further Notice*) (see *supra* ¶ 67). The IRFA is set forth in Appendix E. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Further Notice* provided *infra* paragraph 174. The Commission will send a copy of this *Further Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration ("SBA").[463] In addition, the *Further Notice* and IRFA (or summaries thereof) will be published in the Federal Register.[464].

E. Initial Paperwork Reduction Act Analysis

174. The *Further Notice of Proposed Rule Making* (see supra ¶ 67) contains proposed modified information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and Budget (OMB) to comment on the information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. Public and agency comments are due ***60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER.*** Comments should address: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. § 3506(c)(4), we seek specific comment on how we might "further reduce the information collection burden for small business concerns with fewer than 25 employees."

XIII. ORDERING CLAUSES

[462] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[463] *See* 5 U.S.C. § 603(a).

[464] *Id.*

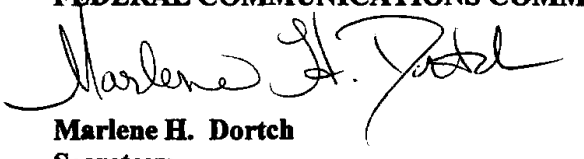
175. Accordingly, IT IS ORDERED THAT, Parts 0, 4, and 63 of the Commission's Rules ARE AMENDED as specified in Appendix B, effective 30 days after publication in the Federal Register. This action is taken pursuant to the authority contained in Sections 1, 4(i)-(j), 4(k), 4(o), 218, 219, 230, 256, 301, 302(a), 303(f), 303(g), 303(j), 303(r), 403, 621(b)(3), and 621(d) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i)-(j), 154(k), 154(o), 218, 219, 230, 256, 301, 302(a), 303(f), 303(g), 303(j), 303(r), 403, 621(b)(3), and 621(d), and in Section 1704 of the Omnibus Consolidated and Emergency Supplemental Appropriations Act of 1998, 44 U.S.C. § 3504, this Report and Order and Further Notice of Proposed Rule Making IS ADOPTED. This Report and Order contains information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13, that are not effective until approved by the Office of Management and Budget. The Federal Communications Commission will publish a document in the Federal Register following approval of the information collection by the Office of Management and Budget ("OMB") announcing the effective date of those rules.

176. IT IS FURTHER ORDERED that the motion for acceptance of late-filed comments filed by the Department of Homeland Security on June 2, 2004, and the motions for acceptance of late-filed reply comments filed by the Department of Homeland Security and CCS Partners, LLC on June 29 and July 6, 2004, respectively, ARE GRANTED for good cause shown.

177. IT IS FURTHER ORDERED that comments on the Further Notice of Proposed Rulemaking initiated herein shall be filed on or before sixty (60) days after publication of this Further Notice of Proposed Rulemaking in the Federal Register and reply comments shall be filed thirty (90) days after publication in the Federal Register.

178. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Report and Order and Further Notice of Proposed Rule Making, including the Final Regulatory Flexibility Analysis and the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION



Marlene H. Dortch
Secretary

APPENDIX A

Alphabetical list of Parties Filing Comments in this Proceeding

- Alliance for Telecommunications Industry Solutions ("ATIS")
- American Mobile Telecommunications Association, Inc. ("AMTA")
- AT&T Corp. ("AT&T")
- BellSouth Corporation ("BellSouth")
- Bloostonlaw Paging Group
- Bloostonlaw Rural Carriers
- Cingular Wireless, LLC ("Cingular")
- City of New York, National League of Cities, and National Association of Telecommunications Officers and Advisors ("City of New York *et al.*")
- Connecticut Department of Public Utility Control ("CDPUC")
- CTIA – The Wireless Association ("CTIA")
- Department of Homeland Security ("DHS")
- Ericsson Inc. ("Ericsson")
- General Communication Inc. ("GCI")
- Globalstar LLC ("Globalstar")
- Independent Telephone & Telecommunications Alliance ("ITTA")
- Intelsat Global Service Corporation ("Intelsat")
- Intrado Inc. ("Intrado")
- Iridium Satellite LCC ("Iridium")
- Kansas Corporation Commission ("KCC")
- Lucent Technologies ("Lucent")
- MCI, Inc. ("MCI")
- National Telecommunications Cooperative Association ("NTCA")
- Nextel Communications, Inc. ("Nextel")
- PanAmSat Corporation and SES AMERICOM, Inc. ("PanAmSat and SES AMERICOM")
- QuEST Forum ("QuEST")
- Qwest Communications International Inc. ("Qwest")
- Rural Incumbent Local Exchange Carriers ("Rural ILECs")
- SBC Communications, Inc. ("SBC")
- Sprint
- Syniverse Technologies, Inc. ("Syniverse")
- Telesat Canada ("Telesat")
- T-Mobile USA, Inc. ("T-Mobile")
- United States Telecom Association ("USTA")
- Verizon Communications Inc. affiliated telephone companies ("Verizon")
- Wayne Martin of Palo Alto, California ("Mr. Martin")
- WilTel Communications, LLC ("WilTel")

Alphabetical list of Parties Filing Reply Comments in this Proceeding

- Alliance for Telecommunications Industry Solutions ("ATIS")
- American Association of Paging Carriers ("AAPC")
- Association of Public-Safety Communications Officials-International, Inc. ("APCO")
- AT&T Corporation ("AT&T")

- BellSouth Corporation ("BellSouth")
- CCS Partners, LLC. ("CCS Partners")
- Cingular Wireless, LLC ("Cingular")
- CTIA – The Wireless Association ("CTIA")
- Department of Homeland Security ("DHS")
- Dobson Communications Corporation ("Dobson")
- eCommerce & Telecommunications User Group ("eTUG")
- Inmarsat Ventures Limited ("Inmarsat")
- MCI, Inc. ("MCI")
- National Emergency Number Association ("NENA")
- Nextel Communications, Inc. ("Nextel")
- Nokia, Inc. ("Nokia")
- Qwest Communications International, Inc. ("Qwest")
- SBC Communications ("SBC")
- Southern Communications Services, Inc. d/b/a Southern LINC and Southern Telecom, Inc. ("Southern LINC and Southern Telecom")
- T-Mobile USA, Inc. ("T-Mobile")
- United States Cellular Corporation ("USCC")
- United States Telecom Association ("USTA")
- Verisign, Inc. ("Verisign")
- Verizon Wireless ("Verizon")

APPENDIX B

FINAL RULES

For the reasons discussed in the preamble, the Federal Communications Commission amends Parts 0 and 63 and creates new Part 4 of Chapter I of Title 47 of the Code of Federal Regulations (C.F.R.) as follows:

PART 0 – COMMISSION ORGANIZATION

The authority citation for part 0 continues to read as follows:

Authority: Sec. 5, 48 Stat. 1068, as amended; 47 U.S.C. 155.

1. Section 0.31 is amended by revising paragraph (i) to read as follows:

§ 0.31 Functions of the Office.

* * * * *

(i) To administer parts 2, 4, 5, 15, and 18 of this chapter, including licensing, recordkeeping, rule making, and revising the filing system and template used for compliance with the Commission's communications disruption reporting requirements.

* * * * *

2. Section 0.241 is amended by revising the introductory text paragraph (a) and paragraph (1) and paragraphs b through g and by adding paragraphs (h) and (i) to read as follows:

§ 0.241 Authority delegated.

(a) The performance of functions and activities described in § 0.31 of this part is delegated to the Chief of the Office of Engineering and Technology: Provided, that the following matters shall be referred to the Commission en banc for disposition:

(1) Notices of proposed rulemaking and of inquiry and final orders in rulemaking proceedings, inquiry proceedings and non-editorial orders making changes, except that the Chief of the Office of Engineering and Technology is delegated authority to make the revisions to the filing system and template necessary to improve the efficiency of reporting and to reduce, where reasonably possible, the time for providers to prepare, and for the Commission staff to review, the communications disruption reports required to be filed pursuant to part 4 of this chapter.

* * * * *

(b) The Chief of the Office of Engineering and Technology is delegated authority to administer the Equipment Authorization program as described in part 2 of the Commission's Rules.

(c) The Chief of the Office of Engineering and Technology is delegated authority to administer the Experimental Radio licensing program pursuant to part 5 of the Commission's Rules.

(d) The Chief of the Office of Engineering and Technology is delegated authority to administer the communications disruption reporting requirements that are contained in part 4 of this chapter and to revise the filing system and template used for the submission of such reports.

(e) The Chief of the Office of Engineering and Technology is delegated authority to examine all applications for certification (approval) of subscription television technical systems as acceptable for use under a subscription television authorization as provided for in this chapter, to notify the applicant that an examination of the certified technical information and data submitted in accordance with the provisions of this chapter indicates that the system does or does not appear to be acceptable for authorization as a subscription television system. This delegation shall be exercised in consultation with the Chief, Media Bureau.

(f) The Chief of the Office of Engineering and Technology is authorized to dismiss or deny petitions for rulemaking which are repetitive or moot or which for other reasons plainly do not warrant consideration by the Commission.

(g) The Chief of the Office of Engineering and Technology is authorized to enter into agreements with the National Institute of Standards and Technology and other accreditation bodies to perform accreditation of test laboratories pursuant to § 2.948(d) of this chapter. In addition, the Chief is authorized to make determinations regarding the continued acceptability of individual accrediting organizations and accredited laboratories.

(h) The Chief of the Office of Engineering and Technology is delegated authority to enter into agreements with the National Institute of Standards and Technology to perform accreditation of Telecommunication Certification Bodies (TCBs) pursuant to §§ 2.960 and 2.962 of this chapter. In addition, the Chief is delegated authority to develop specific methods that will be used to accredit TCBs, to designate TCBs, to make determinations regarding the continued acceptability of individual TCBs, and to develop procedures that TCBs will use for performing post-market surveillance.

(i) The Chief of the Office of Engineering and Technology is delegated authority to make nonsubstantive, editorial revisions to the Commission's rules and regulations contained in parts 2, 4, 5, 15, and 18 of this chapter.

PART 4 – DISRUPTIONS TO COMMUNICATIONS

GENERAL

Sec.

4.11 Notification of communications outages and initial and final communications outage reports that must be filed by communications providers.

4.13 Reports by the National Communications System (NCS) and by special offices and facilities, and related responsibilities of communications providers.

The authority citation for Part 4 reads as follows:

Authority: Sections 1, 4(i), 4(j), 4(o), 218, 219, 230, 256, 301, 302(a), 303(f), 303(g), 303(j), 303(r), 403, 621(b)(3), and 621(d) of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), 154(j), 154(o), 218, 219, 230, 256, 301, 302(a), 303(f), 303(g), 303(j), 303(r), 403, 621(b)(3), and 621(d), unless otherwise noted.

GENERAL

§ 4.1 Scope, basis and purpose.

By these rules the Federal Communications Commission is setting forth requirements pertinent to the reporting of disruptions to communications and to the reliability and security of communications infrastructures.

§ 4.2 Availability of reports filed under this part.

Reports filed under this Part will be presumed to be confidential. Public access to reports filed under this part may be sought only pursuant to the procedures set forth in 47 C.F.R. §0.461. Notice of any requests for inspection of outage reports will be provided pursuant to 47 C.F.R. §0.461(d)(3).

§ 4.3 Communications providers covered by the requirements of this part. As used in this Part:

(a) "Cable communications" providers are cable service providers that also provide circuit-switched telephony. Also included are affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in offering telephony.

(b) "Wireless service" providers include Commercial Mobile Radio Service communications providers that use cellular architecture and CMRS paging providers. In particular, they include Cellular Radio Telephone Service (Part 22 of the Commission's Rules) providers; Personal Communications Service (PCS) (Part 24) providers; those Special Mobile Radio Service (Part 90) providers that meet the definition of "covered CMRS" providers pursuant to Sections 20.18(a), 52.21, and 52.31 of the Commission's Rules, 47 C.F.R. §§ 20.18(a), 52.21, and 52.31; those private paging (Part 90) providers that are treated as CMRS providers (see Section 20.9 of the Commission's Rules, 47 C.F.R. § 20.9); and narrowband PCS providers (Part 24). Also included are affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in offering such communications.

(c) IXC or LEC tandem facilities refer to tandem switches (or their equivalents) and interoffice facilities used in the provision of interexchange or local exchange communications.

(d) "Satellite communications providers" use space stations as a means of providing the public with communications, such as telephony and paging. Also included are affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in

offering such communications. "Satellite operators" refer to entities that operate space stations but do not necessarily provide communications services directly to end users.

(e) Signaling System 7 (SS7) is a signaling system used to control telecommunications networks. It is frequently used to "set up," process, control, and terminate circuit-switched telecommunications, including but not limited to domestic and international telephone calls (irrespective of whether the call is wholly or in part wireless, wireline, local, long distance, or is carried over cable or satellite infrastructure), SMS text messaging services, 8XX number type services, local number portability, VoIP signaling gateway services, 555 number type services, and most paging services. For purposes of this rule Part, SS7 refers to both the SS7 protocol and the packet networks through which signaling information is transported and switched or routed. It includes future modifications to the existing SS7 architecture that will provide the functional equivalency of the SS7 services and network elements that ex[illegible] as of August 4, 2004. SS7 communications providers are subject to the provisions of Part 4 of the Commission's rules regardless of whether or not they provide service directly to end users. Also subject to Part 4 of the Commission's rules are affiliated and non-affiliated entities that maintain or provide communications networks or services used by the SS7 provider in offering SS7 communications.

(f) "Wireline communications providers" offer terrestrial communications through direct connectivity, predominantly by wire, coaxial cable, or optical fiber, between the serving central office (as now defined on October 1, 2002 in the glossary to Part 36 of the Commission's Rules, 47 C.F.R. Part 36, Appendix-Glossary) and end user location(s). Also included are affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in offering such communications.

(g) "Communications provider" is an entity that provides for a fee to one or more unaffiliated entities: two-way voice and/or data communications; paging service, by radio, wire, cable, satellite, and/or lightguide; and/or SS7 communications.

(h) Exclusion of equipment manufacturers or vendors. Excluded from the requirements of Part 4 of the Commission's rules are those equipment manufacturers or vendors that do not maintain or provide communications networks or services used by communications providers in offering communications.

§ 4.5 Definitions of outage, special offices and facilities, and 911 special facilities. As used in this Part:

(a) "Outage" is defined as a significant degradation in the ability of an end user to establish and maintain a channel of communications as a result of failure or degradation in the performance of a communications provider's network.

(b) Special offices and facilities are defined as major military installations, key government facilities, nuclear power plants, and those airports that are listed as current primary (PR), commercial service (CM), and reliever (RL) airports in the FAA's National Plan of Integrated Airports Systems (NPIAS) (as issued at least one calendar year prior to the outage). The member agencies of the National Communications System (NCS) will determine which of their locations are "major military installations" and "key government facilities." 911 special facilities are addressed separately in paragraph (e) of this section.

(c) All outages that potentially affect communications for at least 30 minutes with any airport that qualifies as a "special office and facility" pursuant to the preceding paragraph shall be reported in accordance with the provisions of sections 4.11 and 4.13.

(d) A mission-affecting outage is defined as an outage that is deemed critical to national security/emergency preparedness (NS/EP) operations of the affected facility by the National Communications System member agency operating the affected facility.

(e) An outage that potentially affects a 911 special facility occurs whenever:

(1) There is a loss of communications to PSAP(s) potentially affecting at least 900,000 user-minutes and: (a) the failure is neither at the PSAP(s) nor on the premises of the PSAP(s); (b) no reroute for all end users was available; and (c) the outage lasts 30 minutes or more; or

(2) There is a loss of 911 call processing capabilities in one or more E-911 tandems/selective routers for at least 30 minutes duration; or

(3) One or more end-office or MSC switches or host/remote clusters is isolated from 911 service for at least 30 minutes and potentially affects at least 900,000 user-minutes; or

(4) There is a loss of ANI/ALI (associated name and location information) and/or a failure of location determination equipment, including Phase II equipment, for at least 30 minutes and potentially affecting at least 900,000 user-minutes (provided that the ANI/ALI or location determination equipment was then currently deployed and in use, and the failure is neither at the PSAP(s) or on the premises of the PSAP(s)).

§ 4.7 Definitions of metrics used to determine the general outage-reporting threshold criteria. As used in this Part:

(a) "Administrative numbers" are defined as the telephone numbers used by communications providers to perform internal administrative or operational functions necessary to maintain reasonable quality of service standards.

(b) "Assigned numbers" are defined as the telephone numbers working in the Public Switched Telephone Network under an agreement such as a contract or tariff at the request of specific end users or customers for their use. This excludes numbers that are not yet working but have a service order pending.

(c) "Assigned telephone number minutes" are defined as the mathematical result of multiplying the duration of an outage, expressed in minutes, by the sum of the number of assigned numbers (defined in paragraph (b) of this section) potentially affected by the outage and the number of administrative numbers (defined in paragraph (a) of this section) potentially affected by the outage. "Assigned telephone number minutes" can alternatively be calculated as the mathematical result of multiplying the duration of an outage, expressed in minutes, by the number of working telephone numbers potentially affected by the outage, where working telephone numbers are defined as the telephone numbers, including DID numbers, working immediately prior to the outage.

(d) "DS3 minutes" are defined as the mathematical result of multiplying the duration of an outage, expressed in minutes, by the number of previously operating DS3 circuits that were affected by the outage.

(e) "User minutes" are defined as:

(A) assigned telephone number minutes (as defined in paragraph (c) of this section), for telephony and for those paging networks in which each individual user is assigned a telephone number;

(B) the mathematical result of multiplying the duration of an outage, expressed in minutes, by the number of end users potentially affected by the outage, for all other forms of communications.

(f) "Working telephone numbers" are defined to be the sum of all telephone numbers that can originate, or terminate telecommunications. This includes, for example, all working telephone number on the customer's side of a PBX, or Centrex, or similar arrangement.

§ 4.9 Outage reporting requirements – threshold criteria.

(a) *Cable.* All cable communications providers shall submit electronically a Notification to the Commission within 120 minutes of discovering that they have experienced on any facilities that they own, operate, lease, or otherwise utilize, an outage of at least 30 minutes duration that: (1) potentially affects at least 900,000 user minutes of telephony service; (2) affects at least 1,350 DS3 minutes; (3) potentially affects any special offices and facilities (in accordance with paragraphs (a) - (d) of section 4.5); or (4) potentially affects a 911 special facility (as defined in paragraph (e) of section 4.5), in which case they also shall notify, as soon as possible by telephone or other electronic means, any official who has been designated by the management of the affected 911 facility as the provider's contact person for communications outages at that facility, and they shall convey to that person all available information that may be useful to the management of the affected facility in mitigating the effects of the outage on callers to that facility. (DS3 minutes and user minutes are defined in paragraphs (d) and (e) of section 4.7.) Not later than 72 hours after discovering the outage, the provider shall submit electronically an Initial Communications Outage Report to the Commission. Not later than thirty days after discovering the outage, the provider shall submit electronically a Final Communications Outage Report to the Commission. The Notification and the Initial and Final reports shall comply with all of the requirements of section 4.11.

(b) *Wireless.* All wireless service providers shall submit electronically a Notification to the Commission within 120 minutes of discovering that they have experienced on any facilities that they own, operate, lease, or otherwise utilize, an outage of at least 30 minutes duration: (1) of a Mobile Switching Center (MSC); (2) that potentially affects at least 900,000 user minutes of either telephony and associated data (2nd generation or lower) service or paging service; (3) that affects at least 1,350 DS3 minutes; (4) that potentially affects any special offices and facilities (in accordance with paragraphs (a) - (d) of section 4.5) other than airports; or (5) that potentially affects a 911 special facility (as defined in (e) of section 4.5), in which case they also shall notify, as soon as possible by telephone or other electronic means, any official who has been designated by the management of the affected 911 facility as the provider's contact person for communications outages at that facility, and they shall convey to that person all available information that may be useful to the management of the affected facility in mitigating the effects of the outage on callers to that facility. (DS3 minutes and user minutes are defined in paragraphs (d) and (e) of section 4.7.) In determining the number of users potentially affected by a failure of a switch, a concentration ratio of 8 shall be applied. For providers of paging service solely, however, the following outage criteria shall apply instead of those in subparagraphs (1) – (3), above: Notification must be submitted if the failure of a switch for at least 30 minutes duration potentially affects at least 900,000 user-minutes. Not later than 72 hours after discovering the outage, the provider shall submit electronically an Initial Communications Outage Report to the Commission. Not later than thirty days after discovering the outage, the provider shall